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## A CONVENIENT PARAFFINE BATH FOR INDIVIDUAL USE.

J. F. McCLENDON.

Paraffine baths may be classified according to source of heat, into oil, gas and electric ; and according to mode of regulation of temperature into fixed, regulated by attendant and self-regulating. In the self-regulating baths, the amount of heat generated may be variable or the loss of heat variable. In using oil and gas there is more danger from fire than in using electricity. Baths with a fixed temperature regulation can be used only in rooms of approximately constant temperature, and their readjustment by an attendant is inconvenient. Apparatus for controlling the amount of heat generated is too delicate and expensive to be put in the hands of all students. There only remains the electric bath, self-regulated by varying radiation of heat. Several forms of baths using this method have been used, and the form herein described differs from them chiefly in size, shape and material.

The bath consists of a rectangular concrete trough having inside measurements of 21.5 cm. in length, 11 cm. in width and 9.5 cm. in depth, and a general thickness of about 3.5 to 4 cm. In making these troughs I molded the inside with some old pieces of glass and left the glass in as a lining (in case this was not done the inside might be painted or left bare — the paraffine would not soak through so long as the outside is below its melting point). The trough is filled with paraffine of melting point one degree or more (3 in present instance) higher than that used in imbedding. The top is closed by a thin piece of wood in the center of which is a flush lamp socket with opening downward. Into this socket is screwed a four candle power "incandescent" lamp of the spherical type. The lamp reaches about to the bottom of the trough, while the socket projects upward above the top of the bath and is connected by small flexible wires or lamp cord to a 110-volt circuit. In the wooden top near the lamp are cut holes of suit-

able size and shape for sinking receptacles for imbedding dishes, paraffine pitchers, etc. For holding small vials I sunk larger ones through the wooden top and filled the space between the two with lubricating oil to prevent cooling by currents of air when the bath was opened. A flat tile would be useful to cover each side of the bath, avoiding the lamp socket.

The temperature regulation is more perfect than in any other small bath I have seen. The heat of the lamp melts the adjacent paraffine until the radiation equals the heat supplied, and convection currents keep the melted portion at constant temperature. When the temperature of the room rises, more of the paraffine in the trough melts and increases the radiating surface. When the temperature of the room falls, part of this paraffine congeals and decreases the radiating surface. The paraffine in the imbedding dishes is always kept melted unless they have been set too deep or too far from the light. The bath is intended to be fire-proof, but if space is the determining factor it should be made of metal, in which case a higher candle power lamp should be used. The trough might be made of glazed earthenware with double side walls, the spaces between these walls opening downward and the outer walls projecting below the bottom of the bath, thus insuring an air space beneath.

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